Material Safety Data Sheet

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SECTION 1 – CHEMICAL PRODUCT and COMPANY IDENTIFICATION

1.1	Product Name	Sulfidic Caustic Solution
	Chemical Family	Inorganic Salt Solution
	Synonyms	NA (mixture)
	Formula	NA (mixture)
1.2	Manufacturer	Port Arthur Chemical and Environmental Services, L.L.C. 2450 South Gulfway Drive Port Arthur, TX 77641 713-676-1460
1.3	Emergency Contact	Matt Bowman 713-826-1329 CHEMTREC 800-424-9300

SECTION 2 – COMPOSITION and INFORMATION ON INGREDIENTS

2.1 Chemical Ingredients (% by wt)

	Typical Analysis	
Sodium Sulfide (Na2S)	CAS#: 1313-82-2	0 – 5%
Sodium Hydroxide (NaOH)	CAS#: 1310-73-2	6% – 9%
Sodium Hydrosulfide (NaHS)	CAS# 16721-80-5	0 – 0.5%
Sodium Carbonate (Na2CO3)	CAS#: 497-19-8	0 – 4%
Ethylene Glycol		0 – 1%
Triethylene Glycol		0 – .2%
Phenolic Compounds		0 – 1%
Inorganic Chlorides		Less than 5,000 ppm
Water		balance

(See Section 8 for exposure guidelines)

SECTION 3 – HAZARDS IDENTIFICATION

NFPA: Health – 3 Flammability – 0 Reactivity – 1

EMERGENCY OVERVIEW

Warning: Solution is highly alkaline.
May evolve small amounts of hydrogen sulfide, a highly toxic gas.
EYE contact will cause marked eye irritation and possible corneal damage.
SKIN contact will result in irritation and possible corrosion of the skin.
INGESTION will irritate and burn the mouth, throat and the gastrointestinal tract; contact with stomach acid will cause hydrogen sulfide vapors to be released.
HEATING or ACID contact will cause hydrogen sulfide gas to evolve.

3.1 POTENTIAL HEALTH EFFECTS

EYE: Contact with the eyes will cause marked eye irritation and possibly severe corneal damage.

SKIN CONTACT: Contact with the skin will cause skin irritation or a burning sensation. Prolonged contact will result in corrosion of the skin.

SKIN ABSORPTION: Absorption is unlikely to occur.

INGESTION: Ingestion will result in severe burning and corrosion of mouth, throat and the gastrointestinal tract. If the ingested material contacts stomach acid, highly toxic hydrogen sulfide gas will be evolved.

INHALATION: Product solution and vapors contain some highly toxic hydrogen sulfide gas. Exposure to this gas causes headaches, nausea, dizziness and vomiting. Continued exposure can lead to loss of consciousness and death.

CHRONIC EFFECTS – CARCINOGENICITY: Not listed as a carcinogen by NTP, IARC or OSHA.

SECTION 4 – FIRST AID MEASURES

4.1 **EYES:** Immediately flush with large quantities of water for 15 minutes. Hold eyelids apart during irrigation to insure thorough flushing of the entire area of the eye. Obtain immediate medication.

4.2 **SKIN:** Immediately flush with large quantities of water. Remove contaminated clothing under a safety shower. Obtain immediate medical attention.

4.3 **INGESTION:** DO NOT INDUCE VOMITING. If victim is conscious, immediately give 2 to 4 glasses of water. if vomiting does occur, repeat fluid administration. Obtain immediate medical attention.

4.4 **INHALATION:** Remove victim form contaminated atmosphere. If breathing is labored, administer oxygen. If breathinghas ceased, clear airway and start mouth to mouth resuscitation. If heart has stopped beating, external heart massage should be applied. Obtain immediate medical attention.

SECTION 5 – FIRE FIGHTING MEASURES

5.1 FLAMMABLE PROPERTIES

FLASH POINT: Not Flammable METHOD USED: NA

5.2 FLAMMABLE LIMITS: Hydrogen Sulfide LFL: 4% UFL: 44%

5.3 EXTINGUISHING MEDIA: Water spray or foam or as appropriate for combustion involved in fire.

5.4 FIRE and EXPLOSIVE HAZARDS: Solution is non-flammable. However if these solutions are exposed to heat or acids, hydrogen sulfide will be released and may form explosive mixtures with air (see above). Keep containers and/or storage vessels in fire area cooled with water spray. Heating may cause the release of hydrogen sulfide vapors.

5.5 FIRE FIGHTING EQUIPMENT: Because of the possible presence of toxic gases and the corrosive nature of the product, wear self-contained breathing apparatus, positive pressure, MSHA / NIOSH (approved or equivalent) and full protective gear.

SECTION 6 – ACCIDENTIAL RELEASE MEASURES

6.1 SMALL RELEASES: Isolate for 75 feet. Confine area to qualified response personnel. Wear proper Personnel Protective equipment (See Section 8). Confine release material by berming or diverting its path Absorb on sand, earth or other inert dry absorbent. Do not allow into sewer, storm drains or any waterway. Oxidize residual reactive sulfides with a weak (3-5%) hydrogen peroxide solution to stop the release of toxic hydrogen sulfide. Remove contaminated soil and dispose of in accordance with all governmental regulations.

6.2 LARGE RELEASES: Activate Emergency Response Plan procedures. Isolate release area for 500 feet. Confine area to qualified response personnel. Wear proper Personnel Protective Equipment (See Section 8). Shut off release, if safe to do so. Dike spill area to prevent runoff into sewers, drains (potential toxic and explosive mixtures of hydrogen sulfide in confined spaces) or surface waterways (potential aquatic toxicity). Recover as much of the solution as possible. Treat remaining material as a small release (See 6.1).

SECTION 7 – HANDLING and STORAGE

7.1 HANDLING: Wear proper protective equipment (See Section 8). Avoid breathing product vapors. Avoid contact with skin and eyes. Use only in a well ventilated area. Dilute product only in enclosed containers. Wash thoroughly after handling.

7.2 STORAGE: Store in well ventilated areas. Do not store combustibles in the area of storage vessels. Keep away from any sources of heat or flame. Store tote and smaller containers out of direct sunlight at moderate temperatures [<80 F (27 C)]. (See Section 10.4 for materials of construction)

SECTION 8 – EXPOSURE CONTROLS and PERSONAL PROTECTION

8.1 RESPIRATORY PROTECTION: Avoid breathing vapors. If TLV is exceeded, then use a full face respirator with organic vapor cartridges.

8.2 SKIN PROTECTION: Neoprene rubber gloves, chemical suit and boots should be worn to prevent contact with the liquid. Wash contaminated clothing prior to reuse. Contaminated leather shoes cannot be cleaned and should be discarded.

8.3 EYE PROTECTION: Chemical goggles and a full face shield.

8.4 EXPOSURE GUIDELINES:

	OSHA	ACGIH
	TWA STEL	TLV STEL
Hydrogen Sulfide	20 ppm (ceiling)	10 ppm (ceiling)

8.5 ENGINEERING CONTROLS: Use adequate exhaust ventilation to prevent inhalation of product vapors. Where feasible scrub process or storage vessel vapors with caustic solution. Maintain eye wash safety shower in areas where chemical is handled.

SECTION 9 – PHYSICAL and CHEMICAL PROPERTIES

9.1 APPEARANCE: Light to dark brown to green or red liquid.

9.2 ODOR: Hydrocarbon (mercaptan), possibly hydrogen sulfide (rotten egg) odor.

9.3 BOILING POINT: Not Determined

9.4 VAPOR PRESSURE: Not Determined

9.5 VAPOR DENSITY: (Air = 1.0) 1.17

9.6 SOLUBILITY IN WATER: Complete

9.7 SPECIFIC GRAVITY: 1.03 – 1.3 (8.59 – 10.83 lbs/gal)

9.8 pH : 11.5 – 13.5

9.9 VOLATILE: Not Determined

SECTION 10 – STABILITY and REACTIVITY

10.1 STABILITY: This is a stable material.

10.2 HAZARDOUS POLYMERIZATION: Will not occur.

10.3 HAZARDOUS DECOMPOSITION PRODUCTS: Heating product will evolve H2S gas. fire conditions will cause the production of sulfur dioxide. Hydrogen sulfide (4 – 44%) may form flammable mixtures with air.

10.4 INCOMPATIBILITY: Acids will cause the release of highly toxic hydrogen sulfide. Sulfidic caustic solution is not compatible with copper, zinc, aluminum or their alloys (i.e. bronze, brass, galvanized metals, etc.). Corrosive to steel above 150 F (65.5 C). These materials of

SECTION 10 – STABILITY and REACTIVITY (Continued)

construction should not be used in handling systems or storage containers for this product. (See Section 7.2 Storage)

SECTION 11 – TOXICOLOGICAL INFORMATION

11.1 ORAL: Data not available.

11.2 DERMAL: Data not available.

11.3 INHALATION: INH-RAT LC 50: 444 ppm (hydrogen sulfide)

11.4 CHRONIC and CARCINOGENICITY: No evidence available.

11.5 TERATOLOGY: Data not available.

11.6 REPRODUCTION: Data not available.

11.7 MUTAGENICITY: Data not available.

SECTION 12 – ECOLOGICAL INFORMATION

None Available

SECTION 13 – DISPOSAL CONSIDERATIONS

If released to the environment for other than its intended purpose, this product contains some reactive sulfides but not a sufficient quantity to meet the definition of a D003, hazardous waste. The pH may be high enough to meet the definition of a corrosive waste, D002.

SECTION 14 – TRANSPORT INFORMATION

14.1 DOT SHIPPING NAME: Corrosive liquids, n.o.s.

14.2 DOT HAZARD CLASS: 8

14.3 UN/NA NUMBER: UN1760

14.4 PACKING GROUP: II

14.5 DOT PLACARD: Corrosive

14.6 DOT LABLE(s): Corrosive

14.7 IMO SHIPPING NAME: Sodium Hydroxide Solution

14.8 RQ (REPORTABLE QUANTITY): 1,000 lbs (454 Kg) 100% basis (Approx. 538 gals)

14.9 USCG BARGE CERTIFICATION: SSH (sodium sulfide, hydrosulfide solutions, H2S 15 ppm or less). SSI (sodium sulfide, hydrosulfide solutions, H2S greater than 15 ppm but less than 200 ppm).

SECTION 15 – REGULATORY INFORMATION

15.1 OSHA: This product is listed as a hazardous material under criteria of the Federal OSHA Hazard Communication Standard, 29 CFR 1910.1200.

15.2 SARA TITLE III. a. EHS (Extremely Hazardous Substance) List:

b. Sections 311 and 312 (Tier I, II) Categories:

Immediate (acute)	Yes
Fire	No
Sudden Release	No
Reactivity	Yes
Delayed (chronic)	No

c. Section 313 (Toxic Release Report-Form R): No

d. TPQ (Threshold Planning Quantity): No

15.3 CERCLA and SUPERFUND: RQ (Reportable Quantity) 1,000 lbs

15.4 TSCA (Toxic Substance Control Act) Inventory List: Yes

15.5 RCRA (Resource Conservation and Recovery Act) Status: Yes

15.6 WHMIS (Canada) Hazard Classification: E, D1

15.7 DOT HAZARDOUS MATERIAL: (See Section 14) Yes

15.8 CAA HAZARDOUS AIR POLLUTANT (HAP): No

SECTION 16 – OTHER INFORMATION

REVISIONS: The entire MSDS was reformatted to comply to ANSI Standard Z400.1-1993.